




 Input	 Output	 Measure	 Update	 Idea
<p>Input is a (b, 3, 224, 224) RGB image tensor</p>  <p>Preprocessing: normalization, random crop, random rotation color jitter.</p> <p>Data set: ILSVRC 2012</p>	<p>Output is a (b, numOfClasses) continuous tensor. e.g. [0.1, 0.01, 0.99, 0.05 ...]</p> <p>Each value represents the probability that the class type is in the picture.</p>	<p>Label is a (b, numOfClasses) continuous tensor e.g. [0, 0, 1, 0 ...]</p> <p>It is a Human curated label for each picture indicating which classes are present..</p> <p>Loss: Binary Cross Entropy</p> <p>Results: Top-1 error: 26.73 Top-5 error: 8.74</p>	<p>batch size = 16 Optimizer: ADAM learning rate: 0.001 epochs: 1000 with early stopping GPU's used: GTX 1080 Ti CUDA cores: 3584</p>	<p>Resnet is a categorical encoder. It takes in an image input and determines the probability that a class/category is present in that input image.</p> <p>The main innovation of resnet is its skip layers. The skip layers do two things. First, they allow the gradient to more easily propagate through the network allowing for larger networks. Two, The skip layers act upon the input tensor in a new way. They allow for specialized iterative changes. That is each skip block can specialize to act upon a certain part of the tensor, and then additively change the "working draft" that is supplied by the skip layers.</p>

